

REMARKS

Applicant submits that by the present Amendment and Remarks, this application is placed in clear condition for immediate allowance. At the least, the present Amendment places this application in better condition for Appeal. Accordingly, entry of the present Amendment and Remarks, and favorable consideration, are respectfully solicited pursuant to 37 C.F.R. §1.116.

Claims 1 through 20 are pending in this application, of which claims 16 through 20 stand withdrawn from consideration pursuant to the provisions of 37 C.F.R. §1.142(b). Accordingly, claims 1 through 15 are active.

Claims 1, 2, 9, 13 and 15 have been amended. Care has been exercised to avoid the introduction of new matter. Indeed, adequate descriptive support should be apparent throughout the originally filed disclosure as, for example, the depicted embodiments and related discussion thereof in the written description of the specification. In this respect, Applicants would refer to Figs. 13A through 13C, wherein both the polysilicon portion and the silicide portion of the depicted transfer gates have an upper surface coplanar with the upper surface of the plugs and must, inherently, be conductive. Applicant submits that the present Amendment does not generate any new matter issue.

A clean copy of amended claims 1, 2, 9, 13 and 15 appears in the Appendix hereto.

The Drawing Correction

It is proposed to amend each of Figs. 1A, 1B and 1C, as indicated in red on the attached photocopy, to correct the spelling of the word "Larer" to --Layer--. A formal Request for Approval of Drawing Amendment is submitted concurrently herewith.

Claims 1, 2, 15 and 16 were rejected under 35 U.S.C. §102 for lack of novelty as evidenced by Sung (P.N. 6,137,130), presumably U.S. Patent No. 6,025,227 which is of record.

This rejection is traversed as factually erroneous.

The factual determination of lack of novelty under 35 U.S.C. §102 requires the identical disclosure in a single reference of each element of a claimed invention, such that the identically claimed invention is placed into the knowing possession of one having ordinary skill in the art. *Crown Operations International Ltd. v. Solutia, Inc.*, __F.3d__, 62 USPQ2d 1917 (Fed. Cir. 2002); *Helifix Ltd. v. Blok-Lok, Ltd.* 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994). There is a fundamental difference between the claimed invention and Sung's semiconductor device that scotches the factual determination that Sung identically describes the claimed invention within the meaning of 35 U.S.C. §102.

Specifically, in accordance with the claimed invention, the contact plug and the conductive transfer gate have a coplanar height which is also defined by the same surface as the first interlayer insulating film. This feature is neither disclosed nor suggested by Sung.

When confronted with this argument in the responsive Amendment submitted May 14, 2002, the Examiner erroneously stated that cap layer 6 is part of the transfer gate (7th

enumerated paragraph on page 11 of the July 26, 2002 Final Office Action). A capping layer is not part of a transfer gate. Rather it is just what Sung says it is--a nonconductive silicon nitride capping layer.

At any rate, in order to expedite prosecution, claim 1 has been amended to clarify that it is the conductive gate electrode which has an upper surface coplanar with the upper surface of the contact plug. As implicitly admitted by the Examiner, this feature is neither disclosed nor suggested by Sung.

The above argued differences between the claimed invention and Sung's semiconductor device are functionally significant. Specifically, because of the present structure, the height enables an increase in the height of the transfer gate in order to suppress electrical resistance of the gate electrode. This advantage is of particular utility when the design size of the DRAM decreases.

The above argued functionally significant differences between the claimed semiconductor device and Sung's semiconductor device undermine the factual determination that Sung identically describes the claimed invention within the meaning of 35 U.S.C. §102.

Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics Inc., 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986). Applicant, therefore, submits that the imposed rejection of claims 1, 2, 14, 15 and 16 (presumably intending claims 14 and 15) is not factually viable and, hence, solicits withdrawal thereof.

Claims 1, 2, 15 and 16 (presumably intending claims 14 and 15) were rejected under 35 U.S.C. §102 for lack of novelty as evidenced by Hosotani et al.

This rejection is traversed as factually erroneous.

As previously argued, the factual determination of lack of novelty under 35 U.S.C. §102 requires the identical disclosure in a single reference of each element of a claimed invention such that the identically claimed invention is placed into the recognized possession of one having ordinary skill in the art. *Crown Operations International Ltd. v. Solutia, Inc., supra; Helifix Ltd. v. Blok-Lok, Ltd. supra; Electro Medical Systems S.A. v. Cooper Life Sciences, Inc., supra.*

There is a fundamental and significant difference between the claimed semiconductor device and the semiconductor device disclosed by Hosotani et al. that scotches the factual determination that Hosotani et al. identically describe the claimed invention within the meaning of 35 U.S.C. §102.

Specifically, in accordance with the claimed invention, the upper surface of the contact plugs and conductive transfer gates are coplanar with the surface defined by the first interlayer insulating film. This feature is neither disclosed nor suggested by Hosotani et al.

When confronted with this argument in the May 14, 2002 responsive Amendment, the Examiner argued that the capping layer is part of the gate electrode (first full paragraph on page 12 of the July 26, 2002 Final Office Action). This factual determination is erroneous in that a capping layer is not part of a functional gate electrode--is merely protective of that functional gate electrode.

At any rate, independent claim 1 has been clarified by reciting that the upper surface of the conductive gate electrode is coplanar with the upper surface of the contact plug. This feature is neither disclosed nor suggested by Hosotani et al., as tacitly admitted by the Examiner.

As previously pointed out, this difference in structure is functionally significant in that it enables an increase in the height of the transfer gate in order to suppress the electrical resistance

of the gate electrode. This advantage is particularly significant as the size of the DRAM decreases.

The above argued functional significant difference between claim semiconductor device and the semiconductor device disclosed by Hosotani et al. scotches the factual determination that Hosotani et al. identically describe the claimed invention within the meaning of 35 U.S.C. §102. *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics Inc., supra*; *Kloster Speedsteel AB v. Crucible Inc., supra*. Applicant, therefore, submits that the imposed rejection of claims 1, 2, 15 and 16 (presumably intending claims 14 and 15) under 35 U.S.C. §102 for lack of novelty as evidenced by Hosotani et al. is not factually viable and, hence, solicits withdrawal thereof.

Claims 3 through 12 were rejected under 35 U.S.C. §103 for obviousness predicated upon Sung in view of Ozaki et al. U.S.C. §103 for obviousness predicated upon Hosotani et al. in view of Ozaki et al.

Claim 3 through 12 were rejected under 35 U.S.C. §103 for obviousness predicated upon Hosotani et al. in view of Ozaki et al.

Claim 13 was rejected under 35 U.S.C. §103 for obviousness predicated upon Sung in view of Lou.

Claim 13 was rejected under 35 U.S.C. §103 for obviousness predicated upon Hosotani et al. in view of Lou.

Each of the above rejections under 35 U.S.C. §103 is traversed. Specifically, claims 3 through 13 depend ultimately from independent claim 1. Applicants incorporate herein the arguments previously advanced in traversing the imposed rejections of claim 1 under 35 U.S.C.

§102 for lack of novelty as evidenced by each of Sung and Hosotani et al. Specifically, neither Sung nor Hosotani et al. disclose or suggest a semiconductor device as claimed comprising, inter alia, contact plugs and conductive transfer gates, wherein the upper surfaces of the conductive plugs and transfer gates are substantially coplanar. Neither Ozaki et al. nor Lou cure the argued deficiencies of Sung and Hosotani et al. Accordingly, even if the applied references are combined, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Further, Applicant separately argues the patentability of claims 3 and 4. The Examiner admits that none of the **applied** references disclose or suggest the silicide layer and barrier layer. The Examiner turns to acknowledged prior art and a reference identified as Tanaka (Patent No. 6,369,446). These references are not included in the statement of rejection. Neither are the additional references to Hsu et al., Agnello et al. and Chen et al. The Examiner's approach is procedural erroneous and violates **Applicant's right to due process of law**. *In re Hoch*, 166 USPQ2d 406.


Applicants, therefore, submit that the imposed rejections of claims 3 through 12 under 35 U.S.C. §103 for obviousness predicated upon Sung in view of Ozaki et al., claims 3 through 12 under 35 U.S.C. §103 for obviousness predicated upon Hosotani et al. in view of Ozaki et al., claim 13 under 35 U.S.C. §103 for obviousness predicated upon Sung in view of Lou and of claim 13 under 35 U.S.C. §103 for obviousness predicated upon Hosotani et al. in view of Lou are not factually or legally viable and, hence, solicit withdrawal thereof.

It should, therefore, be apparent that each of the imposed rejections has been overcome and that all active claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Date: October 24, 2002